CLAIMS

What is claimed is:

1. A communication system, comprising:

a receiving unit; and

a transmitting unit operatively coupled to the receiving unit via a first channel, the transmitting unit being configurable to transmit a first data stream to the receiving unit in the first channel, the first data stream containing communications data and control data, wherein the transmitting unit transmits the first data stream so that communications data is transmitted in a grouping that complies with an asynchronous protocol and the control data is transmitted within a segment of the first data stream that is specified as unused for communications data according to the asynchronous protocol.

2. The communication system of claim 1 wherein the asynchronous protocol conforms to an Ethernet standard and the grouping is an Ethernet compliant frame.

3. The communication system of claim 1 wherein the segment includes an inter-frame gap according to the asynchronous protocol.

4. The communication system of claim 1 wherein the segment includes an idle period according to the asynchronous protocol.

5. The communication system of claim 1 wherein the first channel is a free space optical system.

6. The communication system of claim 1 further comprising a device coupled to the receiving unit, wherein the device is configured to exchange communications data with the receiving unit over a second channel in a second data stream conforming to the asynchronous protocol.

7. The communication system of claim 6 wherein the receiving unit includes

a first interface unit coupled to the first channel;

a controller unit coupled to the first interface unit; and

a second interface unit coupled to the second channel.

8. The communication system of claim 7 wherein the controller unit includes:

a first processor to process control data; and

a second processor coupled to the first processor and the first interface unit, wherein the second processor is capable of transferring control data between the first interface unit and the first processor.

9. The communication system of claim 8 wherein the second processor is further capable of transferring control data between the second interface unit and the first processor.

10. The communication system of claim 8 wherein the second processor is further capable of transferring communications data between the first and second interface units.

11. The communication system of claim 7 wherein the first interface unit is capable of transmitting an optical signal via free space.

12. The communication system of claim 11 wherein the second channel is a wired channel.

13. A method for use in a communication system, the communication system having a first channel to support transmission according to an asynchronous protocol, the method comprising:

detecting a first segment in a first data stream to be transmitted in the first channel, wherein the first segment is specified as unused for communications data according to the asynchronous protocol; and

transmitting the first data stream in the first channel, wherein the first data stream includes control data being transmitted within the first segment.

14. The method of claim 13 wherein the first data stream includes communications data transmitted in a grouping of the first data stream that complies with the asynchronous protocol.

15. The method of claim 14 wherein the asynchronous protocol conforms to an Ethernet standard and the grouping is a frame according to the Ethernet standard.

16. The method of claim 15 wherein the first segment is an inter-frame gap according to the asynchronous protocol.

17. The method of claim 15 wherein the first segment is an idle period.

18. The method of claim 14 further comprising:

receiving a second data stream from the first channel, the second data stream containing control data and communications data, the communications data being in a first grouping that complies with the asynchronous protocol and the control data being in a second segment that is specified as being unused for data according to the asynchronous protocol;

extracting control data from the second segment;

extracting the communications data from the first grouping; and

transmitting in a second channel the extracted communications data in a second grouping that complies with the asynchronous protocol.

19. The method of claim 18 wherein the asynchronous protocol conforms to an Ethernet standard, the second grouping is a frame according to the Ethernet standard and the second segment is an inter-frame gap according to the Ethernet standard.

20. The method of claim 18 wherein the asynchronous protocol conforms to an Ethernet standard, the second grouping is a frame and the second segment is an idle period according to the Ethernet standard.

21. An apparatus for use in a communication system, the communication system having a first channel to support transmission according to an asynchronous protocol, the method comprising:

means for detecting a first segment in a first data stream to be transmitted in the first channel, wherein the first segment is specified as unused for data according to the asynchronous protocol; and

means for transmitting the first data stream in the first channel, wherein the first data stream includes control data being transmitted within the first segment.

22. The apparatus of claim 21 wherein the first data stream includes communications data transmitted in a grouping of the first data stream that complies with the asynchronous protocol.

23. The apparatus of claim 22 wherein the asynchronous protocol conforms to an Ethernet standard and the grouping is a frame according to the Ethernet standard.

24. The apparatus of claim 21 wherein the first segment is an inter-frame gap according to the asynchronous protocol.

25. The apparatus of claim 21 wherein the first segment is an idle period according to the asynchronous protocol.

26. The apparatus of claim 21 further comprising:

means for receiving a second data stream from the first channel, the second data stream containing control data and communications data, the communications data being in a first grouping that complies with the asynchronous protocol and the control data being in a second segment that is specified as being unused for data according to the asynchronous protocol;

means for extracting control data from the second segment;

means for extracting the communications data from the first grouping; and

means for transmitting in a second channel the extracted communications data in a second grouping that complies with the asynchronous protocol.

27. A communication system, comprising:

a first network;

a first transceiver coupled to the first network;

a second transceiver operatively coupled to the first transceiver via a first channel, the second transceiver being configurable to transmit a first data stream to the first transceiver in the first channel, the first data stream containing communications data and control data, wherein the second transceiver transmits the first data stream so that communications data is transmitted in a grouping of the first data stream that complies with an asynchronous protocol and the control data is transmitted within a segment of the first data stream that is specified as unused for communication data according to the asynchronous protocol; and

a second network coupled to the second transceiver.

28. The communication system of claim 27 wherein the asynchronous protocol conforms to an Ethernet standard and the grouping is an Ethernet compliant frame.

29. The communication system of claim 27 wherein the segment comprises an inter-frame gap according to the asynchronous protocol.

30. The communication system of claim 27 wherein the segment comprises an idle period according to the asynchronous protocol.

31. The communication system of claim 27 wherein the first channel is a free space optical channel.

32. The communication system of claim 27 wherein the communications data was received from the second network for transmission to the first network.

33. The communication system of claim 27 wherein the second transceiver includes

a first interface unit coupled to the first channel;

a controller unit coupled to the first interface unit; and

a second interface unit coupled to the second network via a second channel.

34. The communication system of claim 33 wherein the controller unit includes:

a first processor to process control data; and

a second processor coupled to the first interface unit and the first processor, wherein the second processor is capable of transferring control data between the first interface unit and the first processor.

35. The communication system of claim 34 wherein the second processor is further capable of transferring control data between the second interface unit and the first processor.

36. The communication system of claim 34 wherein the second processor is further capable of transferring communications data between the first and second interface units.

37. The communication system of claim 33 wherein the first interface unit is capable of transmitting an optical signal via free space.

38. The communication system of claim 37 wherein the second channel is a wired channel.

39. A transceiver for use in a communication system having a first channel and a second channel, the first and second channels to respectively support transmission according to first and second asynchronous protocols, the transceiver comprising:

a first interface unit coupled to the first channel;

a second interface unit coupled to the second channel; and

a controller unit coupled to the first interface unit, the controller unit to cause the transceiver to transmit a first data stream through the first channel via the first interface unit, the first data stream containing communications data and control data, wherein the transceiver transmits the first data stream so that communications data is transmitted in a grouping of the first data stream that complies with the first asynchronous protocol and the control data is transmitted within a segment of the first data stream that is specified as unused for communication data according to the first asynchronous protocol.

40. The transceiver of claim 39 wherein the controller unit includes:

a first processor to process control data; and

a second processor coupled to the first processor and the first interface unit, the first processor to transfer control data between the first interface unit and the first processor.

41. The transceiver of claim 40 wherein the second processor is configurable to transfer control data between the second interface unit and the first processor.

42. The transceiver of claim 40 wherein the second processor is further configurable to transfer communications data between the first and second interface units.

43. The transceiver of claim 39 wherein the first interface unit is capable of transmitting an optical signal via free space.

44. The transceiver of claim 43 wherein the second channel is a wired channel.

45. The transceiver of claim 39 wherein the first data stream includes communications data transmitted in a grouping of the first data stream that complies with the first asynchronous protocol.

46. The transceiver of claim 45 wherein the first asynchronous protocol conforms to an Ethernet standard and the grouping is a frame according to an Ethernet standard.

47. The transceiver of claim 45 wherein the segment is an inter-frame gap according to the first asynchronous protocol.

48. The transceiver of claim 45 wherein the segment is an idle period according to the first asynchronous protocol.

49. The transceiver of claim 39 wherein the controller unit is configured to cause the transceiver to transmit a second data stream through the second channel via the second interface unit, the second data stream complying with the second asynchronous protocol.

50. The transceiver of claim 49 wherein the second asynchronous protocol conforms to an Ethernet standard.